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notion that our national system is a failure, and must give place to monarchical rule. A most stupid thought! The national system was never tried, in a way to determine its value, by this or any other nation. It was never more than a mere inchoation of the true nation. It may, perhaps, be regarded as having had birth, though it were a question whether mere foetal insemination were not the truer symbol of its life. Hence it may yet fail to get practical development and organic activity in its own order—its own normal fullness and power. In that case it would exhibit an incapacity on the part of its doctors, wet-nurses, and later tutors and wardens, but surely no fault as to the system itself. How can it be maintained that a distinct system of nationality has proved a failure when it was never matured, nor even approximately developed in its own proper form? As well look for true manhood in malformed infancy, and denounce all manliness as failure because it did not reappear. Yet such is the shallow habit of criticism we daily meet.

Our national system has not proved a failure, nor do we believe it will do so. It never can prove itself a failure until it has been put on trial in its own true form. It can never thus be put upon trial until it shall have been thoroughly developed and organized upon that supreme principle of social law fundamental to its theory as a government of the people, by the people, for the people, without exception. The Lord grant that it may thus come to trial.

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## THE SCIENCE OF EDUCATION.

A PARAPHRASE OF DR. KARL ROSENKRANZ'S "PEDAGOGICS AS A SYSTEM."

BY ANNA C. BRACKETT.

[The translation of "Pedagogics as a System" was prepared and published five years ago. The wide demand for it that has made itself known since that time, especially in normal schools, has proved the value of such works in the domain of education. At the same time, the difficulty the students have always found in its use—a difficulty inseparable from any translation of a German metaphysical

treatise—has led us to the conviction that a paraphrase into a more easily understood form is a necessity, if the thought of Rosenkranz is to be appropriated by the very class who are most in need of it. As was remarked in the preface to the translation, we have in English no other work of similar size which contains so much that is valuable to those engaged in the work of education. It is no compendium of rules or formulas, but rather a systematic, logical treatment of the subject, in which the attention is, as it were, concentrated upon the whole problem of education, while that problem is allowed to work itself out before us. To paraphrase the text—or, rather, to translate it from the metaphysical language in which it at present appears into a language more easy of comprehension—without losing the real significance of the statements, is the task which is here undertaken. Free illustrations and suggestions have been interwoven to give point and application to the thoughts and principles stated. This translation, or paraphrase, follows the paragraphs of the original and of the first translation. The analysis of the whole work, as it appeared in the original translation, is appended at the end of the “Introduction,” as a guide to the student.—TR.]

#### INTRODUCTION.

§ 1. The science of Pedagogics may be called a secondary science, inasmuch as it derives its principles from others. In this respect it differs from Mathematics, which is independent. As it concerns the development of the human intelligence, it must wait upon Psychology for an understanding of that upon which it is to operate, and, as its means are to be sciences and arts, it must wait upon them for a knowledge of its materials. The science of Medicine, in like manner, is dependent on the sciences of Biology, Chemistry, Physics, etc. Moreover, as Medicine may have to deal with a healthy or unhealthy body, and may have it for its province to preserve or restore health, to assist a natural process (as in the case of a broken bone), or to destroy an unnatural one (as in the case of the removal of a tumor), the same variety of work is imposed upon Education.<sup>1</sup>

§ 2. Since the rules of Pedagogics must be extremely flexible, so that they may be adapted to the great variety of minds, and since an infinite variety of circumstances may arise in their application, we find, as we should expect, in all educational literature room for widely differing opinions and the wildest theories; these numerous theories, each of which

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<sup>1</sup> The parallelism between these two sciences, Medicine and Education, is an obvious point, which every student will do well to consider.

may have a strong influence for a season, only to be overthrown and replaced by others.<sup>2</sup> It must be acknowledged that educational literature, as such, is not of a high order. It has its cant like religious literature. Many of its faults, however, are the result of honest effort, on the part of teachers, to remedy existing defects, and the authors are, therefore, not harshly to be blamed. It is also to be remembered that the habit of giving reproof and advice is one fastened in them by the daily necessity of their professional work.<sup>3</sup>

§ 3. As the position of the teacher has ceased to be undervalued, there has been an additional impetus given to self-glorification on his part, and this also—in connection with the fact that schools are no longer isolated as of old, but subject to constant comparison and competition—leads to much careless theorizing among its teachers, especially in the literary field.

§ 4. Pedagogics, because it deals with the human spirit, belongs, in a general classification of the sciences, to the philosophy of spirit, and in the philosophy of spirit it must be classified under the practical, and not the merely theoretical, division. For its problem is not merely to comprehend the nature of that with which it has to deal, the human spirit—its problem is not merely to influence one mind (that of the pupil) by another (that of the teacher)—but to influence it in such a way as to produce the mental freedom of the pupil. The problem is, therefore, not so much to obtain performed works as to excite mental activity. A creative process is required. The pupil is to be forced to go in certain beaten tracks, and yet he is to be so forced to go in these that he shall go of his own free will. All teaching which does not leave the mind of the pupil free is unworthy of the name. It is true that the teacher must understand the nature of mind, as

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<sup>2</sup> This will again remind the student of the theories of treatment in medicine in diseases which, in the seventeenth century, were treated only by bleeding and emetics, are now treated by nourishing food, and no medicines, etc.

<sup>3</sup> The teacher will do well to consider the probable result of the constant association with mental inferiors entailed by his work, and also to consider what counter-irritant is to be applied to balance, in his character, this unavoidable tendency.

he is to deal with mind, but when he has done this he has still his main principle of action unsolved; for the question is, knowing the nature of the mind, How shall he incite it to action, already predetermined in his own mind, without depriving the mind of the pupil of its own free action? How shall he restrain and guide, and yet not enslave?

If, in classifying all sciences, as suggested at the beginning of this section, we should subdivide the practical division of the Philosophy of Spirit, which might be called Ethics, one could find a place for Pedagogics under some one of the grades of Ethics. The education which the child receives through the influence of family life lies at the basis of all other teaching, and what the child learns of life, its duties, and possibilities, in its own home, forms the foundation for all after-work. On the life of the family, then, as a presupposition, all systems of Education must be built. In other words, the school must not attempt to initiate the child into the knowledge of the world—it must not assume the care of its first training; that it must leave to the family.<sup>4</sup> But the science of Pedagogics does not, as a science, properly concern itself with the family education, or with that point of the child's life which is dominated by the family influence. That is education, in a certain sense, without doubt, but it does not properly belong to a science of Pedagogics. But, on the other hand, it must be remembered that this science, as here expounded, presupposes a previous family life in the human being with whom it has to deal.

§ 5. Education as a science will present the necessary and universal principles on which it is based; Education as an art will consist in the practical realization of these in the teacher's work in special places, under special circumstances, and with special pupils. In the skillful application of the principles of the science to the actual demands of the art lies the opportunity for the educator to prove himself a creative artist; and it is in the difficulty involved in this practical

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<sup>4</sup> The age at which the child should be subject to the training of school life, or Education, properly so-called, must vary with different races, nations, and different children.

work that the interest and charm of the educator's work consists.

The teacher must thus adapt himself to the pupil. But, in doing so, he must have a care that he do not carry this adaptation to such a degree as to imply that the pupil is not to change; and he must see to it, also, that the pupil shall always be worked upon by the matter which he is considering, and not too much by the personal influence of the teacher through whom he receives it.<sup>5</sup>

§ 6. The utmost care is necessary lest experiments which have proved successful in certain cases should be generalized into rules, and a formal, dead creed, so to speak, should be adopted. All professional experiences are valuable as material on which to base new conclusions and to make new plans, but only for that use. Unless the day's work is, every day, a new creation, a fatal error has been made.

§ 7. Pedagogics as a science must consider Education—

(1) In its general idea;

(2) In its different phases;

(3) In the special systems arising from this general idea, acting under special circumstances at special times.<sup>6</sup>

§ 8. With regard to the First Part, we remark that by Education, in its general idea, we do not mean any mere history of Pedagogics, nor can any history of Pedagogics be substituted for a systematic exposition of the underlying idea.

§ 9. The second division considers Education under three heads—as physical, intellectual, and moral—and forms, generally, the principal part of all pedagogical treatises.

In this part lies the greatest difficulty as to exact limitation. The ideas on these divisions are often undefined and apt to be confounded, and the detail of which they are capable is almost unlimited, for we might, under this head, speak

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<sup>5</sup> The best educator is he who makes his pupils independent of himself. This implies on the teacher's part an ability to lose himself in his work, and a desire for the real growth of the pupil, independent of any personal fame of his own—a disinterestedness which places education on a level with the noblest occupations of man.

<sup>6</sup> See analysis.

of all kinds of special schools, such as those for war, art, mining, etc.

§ 10. In the Third Part we consider the different realizations of the one general idea of Pedagogics as it has developed itself under different circumstances and in different ages of the world.

The general idea is forced into different phases by the varying physical, intellectual, and moral conditions of men. The result is the different systems, as shown in the analysis. The general idea is one. The view of the end to be obtained determines in each case the actualization of this idea. Hence the different systems of Education are each determined by the stand-point from which the general ideal is viewed. Proceeding in this manner, it might be possible to construct a history of Pedagogics, *a priori*, without reference to actual history, since all the possible systems might be inferred from the possible definite number of points of view.

Each lower stand-point will lead to a higher, but it will not be lost in it. Thus, where Education, for the sake of the nation,<sup>7</sup> merges into the Education based on Christianity, the form is not thereby destroyed, but, rather, in the transition first attains its full realization. The systems of Education which were based on the idea of the nation had, in the fullness of time, outgrown their own limits, and needed a new form in order to contain their own true idea. The idea of the nation, as the highest principle, gives way for that of Christianity. A new life came to the old idea in what at first seemed to be its destruction. The idea of the nation was born again, and not destroyed, in Christianity.

§ 11. The final system, so far, is that of the present time, which thus is itself the fruit of all the past systems, as well as the seed of all systems that are to be. The science of Pedagogics, in the consideration of the system of the present, thus again finds embodied the general idea of education, and thus returns upon itself to the point from whence it set out. In the First and Second Parts there is already given the idea which dominates the system found thus necessarily existing in the present.

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<sup>7</sup> Asiatic systems of Education have this basis (see § 178 of the original).

Education.	FIRST PART. In its General Idea.	{	Its Nature. Its Form. Its Limits.						
	SECOND PART. In its Special Elements.	{	Physical. Intellectual. Moral.						
	THIRD PART. In its Particular Systems.	{	National.	{	Passive.	{	Family . . China. Caste. . . India. Monkish . Thibet.		
					Active.	{	Military. . Persia. Priestly. . Egypt. Industrial. Phœnicia.		
						Individual.	{	Æsthetic . Greece. Practical . Rome. Abstract . Northern Individual . Barbarians	
				Theocratic.	. . . . .			Jews.	
					Humanitarian.	{	Monkish.		
							Chivalric.		
For Civil Life.	{	For Special Callings.	{	Jesuitic. Pietistic.					
		To achieve an Ideal of Culture.	{	The Humanities. The Philanthropic Movement.					
			For Free Citizenship.						

## FIRST PART.

### The General Idea of Education.

§ 12. A full treatment of Pedagogics must distinguish—

- (1) The nature of Education ;
- (2) The form of Education ;
- (3) The limits of Education.

### I.—The Nature of Education.

§ 13. The nature of Education is determined by the nature of mind, the distinguishing mark of which is that it can be developed only from within, and by its own activity. Mind is essentially free—*i. e.*, it has the capacity for freedom—but it cannot be said to possess freedom till it has obtained it by its



own voluntary effort. Till then it cannot be truly said to be free. Education consists in enabling a human being to take possession of, and to develop himself by, his own efforts, and the work of the educator cannot be said to be done in any sense where this is not accomplished. In general, we may say that the work of education consists in leading to a full development of all the inherent powers of the mind, and that its work is done when, in this way, the mind has attained perfect freedom, or the state in which alone it can be said to be truly itself.<sup>7</sup>

The isolated human being can never become truly man. If such human beings (like the wild girl of the forest of Ardenes) have been found, they have only proved to us that reciprocal action with our fellow beings is necessary for the development of our powers. Caspar Hauser, in his subterranean prison, will serve as an example of what man would be without men. One might say that this fact is typified by the first cry of the newly-born child. It is as if the first expression of its seemingly independent life were a cry for help from others. On the side of nature the human being is at first quite helpless.

§ 14. Man is, therefore, the only proper object of education. It is true that we speak of the education of plants and of animals, but we instinctively apply other terms when we do so, for we say "raising" plants, and "training" animals. When we "train" or "break" an animal, it is true that we do, by pain or pleasure, lead him into an exercise of a new activity. But the difference between this and Education consists in the fact that, though he possessed capacity, yet by no amount of association with his kind would he ever have acquired this new development. It is as if we impress upon his plastic nature the imprint of our loftier nature, which imprint he takes mechanically, and does not himself recognize it as his own internal nature. We train him for our recognition, not for his own. But, on the contrary, when we educate a human being, we only excite him to create for himself, and out of himself,

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<sup>7</sup> The definition of freedom here implied is this: Mind is free when it knows itself and wills its own laws.

that for which he would most earnestly strive had he any appreciation of it beforehand, and in proportion as he does appreciate it he recognizes it joyfully as a part of himself, as his own inheritance, which he appropriates with a knowledge that it is his, or, rather, is a part of his own nature. He who speaks of "raising" human beings uses language which belongs only to the slave-dealer, to whom human beings are only cattle for labor, and whose property increases in value with the number.

Are there no school-rooms where Education has ceased to have any meaning, and where physical pain is made to produce its only possible result—a mechanical, external repetition? The school-rooms where the creative word—the only thing which can influence the mind—has ceased to be used as the means are only plantations, where human beings are degraded to the position of lower animals.

§ 15. When we speak of the Education of the human race, we mean the gradual growth of the nations of the earth, as a whole, towards the realization of self-conscious freedom. Divine Providence is the teacher here. The means by which the development is effected are the various circumstances and actions of the different races of men, and the pupils are the nations. The unfolding of this great Education is generally treated of under the head of Philosophy of History.

§ 16. Education, however, in a more restricted sense, has to do with the shaping of the individual. Each one of us is to be educated by the laws of physical nature—by the relations into which we come with the national life, in its laws, customs, etc., and by the circumstances which daily surround us. By the force of these we find our arbitrary will hemmed in, modified, and forced to take new channels and forms. We are too often unmindful of the power with which these forces are daily and hourly educating us—*i. e.*, calling out our possibilities into real existence. If we set up our will in opposition to either of these; if we act in opposition to the laws of nature; if we seriously offend the laws, or even the customs, of the people among whom we live; or if we despise our individual lot, we do so only to find ourselves crushed in

the encounter. We only learn the impotence of the individual against these mighty powers; and that discovery is, of itself, a part of our education. It is sometimes only by such severe means that God is revealed to the man who persistently misunderstands and defies His creation. All suffering brought on ourselves by our own violation of laws, whether natural, ethical, or divine, must be, however, thus recognized as the richest blessing. We do not mean to say that it is never allowable for a man, in obedience to the highest laws of his spiritual being, to break away from the fetters of nature—to offend the ethical sense of his own people, or to struggle against the might of destiny. Reformers and martyrs would be examples of such, and our remarks above do not apply to them, but to the perverse, the frivolous, and the conceited; to those who are seeking in their action, not the undoubted will of God, but their own individual will or caprice.

§ 17. But we generally use the word Education in a still narrower sense than either of these, for we mean by it the working of one individual mind upon or within another in some definite and premeditated way, so as to fit the pupil for life generally, or for some special pursuit. For this end the educator must be relatively finished in his own education, and the pupil must possess confidence in him, or docility. He must be teachable. That the work be successful, demands the very highest degree of talent, knowledge, skill, and prudence; and any development is impossible if a well-founded authority be wanting in the educator, or docility on the part of the pupil.

Education, in this narrowest and technical sense, is an outgrowth of city or urban life. As long as men do not congregate in large cities, the three forces spoken of in § 16—*i. e.*, the forces of nature, national customs, and circumstances—will be left to perform most of the work of Education; but, in modern city life, the great complication of events, the uncertainty in the results—though careful forethought has been used—the immense development of individuality, and the pressing need of various information, break the power of custom, and render a different method necessary.

The larger the city is, the more free is the individual in it from the restraints of customs, the less subjected to curious criticism, and the more able is he to give play to his own idiosyncrasies. This, however, is a freedom which needs the counterpoise of a more exact training in conventionalities, if we would not have it dangerous. Hence the rapid multiplication of educational institutions and systems in modern times (one chief characteristic of which is the development of urban life). The ideal Telemachus of Fenelon differs very much from the real Telemachus of history. Fenelon proposed an education which trained a youth to reflect, and to guide himself by reason. The Telemachus of the heroic age followed the customs ("use and wont") of his times with *naïve* obedience. The systems of Education once sufficient do not serve the needs of modern life, any more than the defenses once sufficient against hostile armies are sufficient against the new weapons adopted by modern warfare.

§ 18. The problem with which modern Education has to deal may be said, in general terms, to be the development in the individual soul of the indwelling Reason, both practical (as will) and theoretical (as intellect). To make a child good is only a part of Education; we have also to develop his intelligence. The sciences of Ethics and Education are not the same. Again, we must not forget that no pupil is simply a human being, like every other human being; he is also an individual, and thus differs from every other one of the race. This is a point which must never be lost sight of by the educator. Human beings may be—nay, must be—educated in company, but they cannot be educated simply in the mass.

§ 19. Education is to lead the pupil by a graded series of exercises, previously arranged and prescribed by the educator, to a definite end. But these exercises must take on a peculiar form for each particular pupil under the special circumstances present. Hasty and inconsiderate work *may*, by chance, accomplish much; but no work which is not *systematic* can advance and fashion him in conformity with his nature, and such alone is to be called Education; for Educa-

tion implies both a comprehension of the end to be attained and of the means necessary to compass that end.

§ 20. Culture, however, means more and more every year; and, as the sum total of knowledge increases for mankind, it becomes necessary, in order to be a master in any one line, to devote one's self almost exclusively to that. Hence arises, for the teacher, the difficulty of preserving the unity and wholeness which are essential to a complete man. The principle of division of labor comes in. He who is a teacher by profession becomes one-sided in his views; and, as teaching divides and subdivides into specialities, this abnormal one-sidedness tends more and more to appear. Here we find a parallelism in the profession of Medicine, with a corresponding danger of narrowness; for that, too, is in a process of constant specialization, and the physician who treats nervous diseases is likely to be of the opinion that all trouble arises from that part of the organism, or, at least, that all remedies should be applied there. This tendency to one-sidedness is inseparable from the progress of civilization and that of science and arts. It contains, nevertheless, a danger of which no teacher should be unwarned. An illustration is furnished by the microscope or telescope; a higher power of the instrument implies a narrower field of view. To concentrate our observation upon one point implies the shutting out of others. This difficulty with the teacher creates one for the pupil.

In this view one might be inclined to judge that the life of the savage as compared with that of civilized man, or that of a member of a rural community as compared with that of an inhabitant of a city, were the more to be desired. The savage has his hut, his family, his cocoa-palm, his weapons, his passions; he fishes, hunts, amuses himself, adorns himself, and enjoys the consciousness that he is the center of a little world; while the denizen of a city must often acknowledge that he is, so to speak, only one wheel of a gigantic machine. Is the life of the savage, therefore, more favorable to human development? The characteristic idea of modern civilization is: The development of the individual as the end for which the State exists. The great empires of Persia, Egypt, and India,

wherein the individual was of value only as he ministered to the strength of the State, have given way to the modern nations, where individual freedom is pushed so far that the State seems only an instrument for the good of the individual. From being the supreme end of the individual, the State has become the means for his advancement into freedom; and with this very exaltation of the value of the mere individual over the State, as such, there is inseparably connected the seeming destruction of the wholeness of the individual man. But the union of State and individual, which was in ancient times merely mechanical, has now become a living process, in which constant interaction gives rise to all the intellectual life of modern civilization.

§ 21. The work of Education being thus necessarily split up, we have the distinction between general and special schools. The work of the former is to give general development—what is considered essential for all men; that of the latter, to prepare for special callings. The former should furnish a basis for the latter—*i. e.*, the College should precede the Medical School, etc., and the High School the Normal. In the United States, owing to many causes, this is unfortunately not the case.

The difference between city and country life is important here. The teacher in a country school, and, still more, the private tutor or governess, must be able to teach many more things than the teacher in a graded school in the city, or the professor in a college or university. The danger on the one side is of superficiality, on the other of narrowness.

§ 22. The Education of any individual can be only relatively finished. His possibilities are infinite. His actual realization of those possibilities must always remain far behind. The latter can only approximate to the former. It can never reach them. The term “finishing an education” needs, therefore, some definition; for, as a technical term, it has undoubtedly a meaning. An immortal soul can never complete its development; for, in so doing, it would give the lie to its own nature. We cannot speak properly, however, of educating an idiot. Such an unfortunate has no power of generali-

zation, and no conscious personality. We can train him mechanically, but we cannot educate him. This will help to illustrate the difference, spoken of in § 14, between Education and Mechanical training.

We obtain astonishing results, it is true, in our schools for idiots, and yet we cannot fail to perceive that, after all, we have only an external result. We produce a mechanical performance of duties, and yet there seems to be no actual mental growth. It is an exogenous, and not an endogenous, growth, to use the language of Botany.<sup>9</sup> Continual repetition, under the most gentle patience, renders the movements easy, but, after all, they are only automatic, or what the physicians call reflex.

We have the same result produced in a less degree when we attempt to teach an intelligent child something which is beyond his active comprehension. A child may be taught to do or say almost anything by patient training, but, if what he is to say is beyond the power of his mental comprehension, and hence of his active assimilation, we are only training him as we train an animal (§ 14), and not educating him. We call such recitations parrot recitations, and, by our use of the word, express exactly in what position the pupils are placed. An idiot is only a case of permanently arrested development. What in the intelligent child is a passing phase is for the idiot a fixed state. We have idiots of all grades, as we have children of all ages.

The above observations must not be taken to mean that children should never be taught to perform operations in arithmetic which they do not, in cant phrase, "perfectly understand," or to learn poetry whose whole meaning they cannot fathom. Into this error many teachers have fallen.

There can be no more profitable study for a teacher than to visit one of these numerous idiot schools. He finds the alphabet of his professional work there. As the philologist learns of the formation and growth of language by examining, not

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<sup>9</sup> Perhaps, however slow the growth, there is real progress in liberating the imprisoned soul (?)

the perfectly formed languages, but the dialects of savage tribes, so with the teacher. In like manner more insight into the philosophy of teaching and of the nature of the mind can be acquired by teaching a class of children to read than in any other grade of work.

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## BOOLE'S LOGICAL METHOD.

BY GEORGE BRUCE HALSTEAD.

Perhaps the possession of absolute originality cannot be better demonstrated than by breaking through the barriers inside which men have hitherto worked, pushing boldly into what was supposed to be outer void and darkness, and, without hint, without help, opening broad roads and showing fertile fields for wholly new, unsuspected sciences. This did George Boole in more than one direction.

The vast Invariantive Algebra, which is now the foundation rock of modern advance in mathematics, was started by him. Says Salmon (3d ed., p. 103): "What I have called Modern Algebra may be said to have taken its origin from a paper in the *Cambridge Mathematical Journal* for November, 1841, where Dr. Boole established the principles just stated, and made some important applications of them."

Of the same epoch-making character were his extensive contributions to the Calculus of Operations. Again, in 1862, Russell said before the British Association, in regard to the Calculus of Symbols: "It received a fresh impulse from the very remarkable memoir of Prof. Boole (on a 'General Method in Analysis.' *Phil. Trans.*, 1844), in which an algebra of non-commutative symbols was invented and applied." He found many willing and able to follow on these roads, and to settle in the new lands thus laid open; but when, in 1847, he struck the key-note of a generalization of logic, which exhibits it as almost a new science, he seems to have advanced too far beyond his time, and so was left to carry it on alone, which he